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The effects of stress urinary incontinence on the quality of life of Turkish women in the reproductive age group

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Aim: This study was performed in order to evaluate the effect of urinary incontinence (UI) on the quality of life of women in the reproductive age group.

Materials and methods: Included in the study were 150 women with UI [stress urinary incontinence (SUI) or mixed urinary incontinence (MUI)] and 150 healthy women, ranging in age between 15 and 49 years. Short Form 36 (SF-36) and the Urogenital Distress Inventory (UDI-6) were filled in by the women in both groups and the Incontinence Impact Questionnaire (IIQ-7) was filled in only by the women in the UI group. Unpaired t-tests and the general linear model (GLM) were used for statistical analyses.

Results: It was determined that the quality of life scores for all of the domains were significantly lower and the UDI-6 scores were significantly higher in the UI group than in the controls. The physical functioning, vitality, and social functioning scores of the women with MUI were lower than those of the women with pure SUI.

Conclusion: The quality of life of women with SUI and MUI was significantly lower than the women without UI. For this reason, UI should be treated adequately.

Key words: Urinary incontinence, quality of life, woman, urogenital distress inventory, incontinence impact questionnaire

Introduction

Urinary incontinence (UI) is defined by the International Continence Society as “the complaint of any involuntary leakage of urine” (1). UI is clinically classified according to the symptoms as stress urinary incontinence (SUI), urge urinary incontinence (UUI), mixed urinary incontinence (MUI), and others (2-6). SUI is involuntary loss of urine by effort, exercise, sneeze, or cough. UUI is involuntary loss of urine accompanied by or following a sudden compelling desire to void, which is difficult to defer. MUI cases have the symptoms of both SUI and UUI (2,3). MUI cases may be accepted as both SUI and UUI because they have both symptoms. For this reason, the cases that have only the symptoms of SUI

may be described as “pure SUI” and the cases that have only the symptoms of UUI may be described as “pure UUI” (7,8).

There is a positive relationship between frequency of incontinence and aging, menopause, and vaginal delivery (4,9-14). The prevalence rate of UI in adult women, was between 12.2% and 78.0% in different studies in Turkey and other countries (9,11-16).

UI is a preventable and treatable health issue. The prevalence rate of UI in women is quite high, and therefore it may be accepted as a normal condition by women. UI, which shows an increasing frequency with age, has a negative effect on the quality of life of women due to social, psychological, and medical problems (4,9).

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Although UI is not a life-threatening condition, it has a physical and psychosocial effect on patients. Incontinence creates feelings of shame, decreases self confidence, decreases social and psychological well-being, impairs sexual life and sleep patterns, and affects social activities (5,6,17). As a result, people with UI may have a lower quality of life.

Many studies have been performed in order to establish the effect of UI on quality of life. A negative effect of UI on quality of life was established in studies from countries such as Japan, France, Germany, and England (16,18). It has been reported that MUI had a more prominent effect than pure SUI or pure UUI on quality of life (19-21).

This study was performed in order to compare the level of quality of life of women with SUI to those of women without UI, to compare the level of quality of life of women with pure SUI and MUI, and to establish which domains of quality of life are affected in the pure SUI and MUI cases.

Materials and methods

The study was conducted in the provincial center of Kayseri in 2007. Kayseri is a province in the central part of Turkey and has a population of approximately 1.2 million. The biggest hospital in the province, providing secondary health care services, is Kayseri Teaching and Research Hospital, with 1045 beds.

Two sample groups of equal size, consisting of married women between 15 and 49 years of age with UI and without UI (healthy controls), were included in the study. The quality of life score difference between the women with and without UI was estimated to be 5 points and the standard deviation of quality of life scores was 15 points. Confidence level and power were taken as 0.95 and 0.80, respectively. The minimum sample size was calculated as 142 cases for each group, and 150 women were included in each group.

Married women who were referred to the gynecology polyclinic of Kayseri Teaching and Research Hospital were informed about the study and verbal consent was taken. The women who agreed to participate were asked if they had UI or not. Included in the study group were 150 consecutive women who were diagnosed with pure SUI or MUI and who

agreed to participate in the study, and 150 married women in the same age group who did not have UI were taken as the control group. Pregnant women and pure UUI cases were excluded. It was established that 40 cases in the UI group were pure SUI and 110 were MUI.

A questionnaire prepared by the investigators including 16 questions regarding the women's sociodemographic and obstetric characteristics, the Urogenital Distress Inventory (UDI-6), and Short Form-36 (SF-36) were filled in by the women in both groups under the supervision of the investigators, while the Incontinence Impact Questionnaire (IIQ-7) was filled in only by the women with UI.

Measurements

SF-36 is a self-evaluation scale developed by Ware and Sherbourne (22) that includes 36 items that evaluate 8 subscales of quality of life. The subscales of SF-36 are physical functioning, role limitations due to physical problems (role-physical), bodily pain, general health, vitality, social functioning, role limitations due to emotional problems (role-emotional), and mental health. The responses to all 8 subscales are evaluated by standard scores between 0 and 100. Higher SF-36 scores show a better health-related quality of life. The SF-36 scale can be used in the evaluation of various diseases and in evaluating the quality of life of society in general (19,23). The Turkish version of SF-36 was validated by Koçyiğit et al. (24).

The UDI-6 was developed to evaluate the functions of the bladder and to establish which symptom causes the problem. It comprises 6 questions. The first 2 questions are related to irritative symptoms (urgency, frequency, and pain), questions 3 and 4 are related to stress incontinence, and the last 2 questions are related to obstructive or voiding difficulty symptoms. High UDI-6 scores show the severity of the urogenital complaints (25,26).

The IIQ-7 is a self-reported questionnaire filled in by individuals with UI. There are 7 questions in the questionnaire that are related to physical activity, social relationships, travel, and emotional health. The total score of the questionnaire is evaluated between 0 and 100, and higher scores show a higher degree of negative impact of UI (27). The Turkish versions of the UDI-6 and IIQ-7 scales were validated by Cam et al. (28).

The responses given for the SF-36, UDI-6, and IIQ-7 scales were evaluated according to their instructions. In the SF-36 scale, the scores from the 8 subscales regarding quality of life were calculated. The answers to the UDI-6 and IIQ-7 scales were summed separately and converted to scores between 0 and 100.

Pure SUI and MUI cases were evaluated together as the UI group during the comparison of UI patients and the controls. The quality of life scores of women with UI and of those without UI were compared. Furthermore, among the women with UI, those with MUI were compared to those with pure SUI. Unpaired t-tests were used to compare the basic characteristics of the study groups. The general linear model (GLM) was used to compare the SF-36, UDI-6, and IIQ-7 scores of the study groups. Age was taken as a covariant. Pearson's correlation analysis was used to investigate the relationships between age and the SF-36, UDI-6, and IIQ-7 scores. All of the numerical data are shown as means \pm standard deviations (SDs).

Ethical committee approval was given by the Erciyes University Medical Faculty Ethical Committee, and administrative permission was given by the directorate of Kayseri Teaching and Research Hospital.

Results

Some of the sociodemographic and obstetric characteristics of the patients with UI and the controls are given in Table 1. As shown in Table 1, there was no difference between the study groups from the standpoint of mean current age. However, the means for total number of pregnancies, total number of births, and total number of vaginal deliveries were significantly higher in the UI group than in the controls.

It was established that 73% of the patients with UI also had UUI. Comparison of the SF-36 domains and UDI-6 scores between the UI and control groups are given in Table 2.

Table 1. Sociodemographic and obstetric characteristics of the study groups.

Characteristics	SUI group (n = 150)	Control group (n = 150)	P
	(mean \pm SD)	(mean \pm SD)	
Current age (years)	42.5 \pm 6.6	42.2 \pm 6.7	0.704
Age of first marriage (years)	19.1 \pm 2.5	18.6 \pm 2.8	0.056
Total number of pregnancies	4.3 \pm 2.1	3.0 \pm 1.3	<0.001
Total number of births	3.1 \pm 1.2	2.7 \pm 1.0	0.001
Total number of vaginal deliveries	2.7 \pm 1.4	2.4 \pm 1.2	0.035

Table 2. Comparison of the SF-36 and UDI-6 scores in the study and control groups.

Scales	SUI group (n = 150)	Control group (n = 150)	p*
	(mean \pm SD)	(mean \pm SD)	
Physical functioning	71.0 \pm 20.5	80.2 \pm 15.5	<0.001
Role-physical	55.3 \pm 44.6	67.0 \pm 46.6	0.091
Bodily pain	58.7 \pm 28.9	72.9 \pm 22.3	<0.001
General health	47.2 \pm 12.8	60.7 \pm 18.2	<0.001
Vitality	51.7 \pm 18.1	67.0 \pm 15.3	<0.001
Social functioning	66.8 \pm 20.6	77.5 \pm 26.2	0.001
Role-emotional	49.8 \pm 38.4	54.0 \pm 36.4	0.557
Mental health	60.3 \pm 7.8	62.4 \pm 13.0	0.034
UDI-6	53.5 \pm 15.6	36.7 \pm 9.9	<0.001

*P values from GLM (age was taken as a covariant).

As seen in Table 2, the means of quality of life scores for all of the domains, except role-physical and role-emotional, were significantly lower in the UI group compared to the control group. On the other hand, the mean UDI-6 score in the UI group was significantly higher than in the control group.

The SF-36, UDI-6, and IIQ-7 scores of MUI and pure SUI cases were compared and the results are shown in Table 3.

The physical functioning, vitality, and social functioning scores of the patients with MUI were lower and the UDI-6 and IIQ-7 scores of the MUI group were significantly higher than the scores of women with pure SUI (Table 3).

There were negative correlations between age and SF-36 scores for all of the domains in the control group. On the other hand, there were positive correlations between age and the physical functioning, general health, social functioning, role-emotional, and mental health domains of SF-36 in the UI group. Additionally, there were negative correlations between age and the UDI-6 and IIQ-7 scores (Table 4).

Table 4. The relationship between age and quality of life, UDI-6 scores, and IIQ-7 scores in the SUI and control groups.

Independent variable: age		
Dependent variables	SUI group	Control group
Physical functioning	0.453**	-0.125
Role-physical	0.040	-0.383**
Bodily pain	-0.137	-0.325**
General health	0.311**	-0.060
Vitality	-0.203*	-0.312**
Social functioning	0.240**	-0.279**
Role-emotional	0.212**	-0.269**
Mental health	0.268**	-0.282**
UDI-6	-0.422**	0.149
IIQ-7	-0.451**	NS

*P < 0.05, **P < 0.01, NS: not suitable.

Discussion

In the UI group, all of the SF-36 domain scores were lower and the UDI-6 score was higher than in

Table 3. Comparison of the SF-36, UDI-6, and IIQ-7 scores in women with and without UUI in the SUI group.

Scales	MUI (n = 110) (mean ± SD)	Pure SUI (n = 40) (mean ± SD)	P*
Physical functioning	67.6 ± 19.3	80.4 ± 21.2	0.001
Role-physical	53.4 ± 46.1	60.6 ± 39.9	0.687
Bodily pain	57.9 ± 29.2	61.0 ± 28.3	0.885
General health	46.0 ± 10.3	50.5 ± 17.7	0.164
Vitality	49.2 ± 18.3	58.8 ± 15.9	0.020
Social functioning	62.6 ± 19.3	78.1 ± 20.2	<0.001
Role-emotional	48.5 ± 37.7	53.3 ± 40.5	0.673
Mental health	60.4 ± 6.2	60.0 ± 11.1	0.773
UDI-6	57.6 ± 16.4	42.8 ± 4.7	<0.001
IIQ-7	36.4 ± 13.9	26.5 ± 3.1	<0.001

*P values from GLM (age was taken as covariant).

the controls. All of the differences were statistically significant, except for the role-physical and role-emotional domains. Both the physical and mental components of quality of life were affected in UI cases. The highest differences between SUI and the control groups were for the bodily pain and vitality domains. Similarly, in some studies performed with the SF-36 and SF-12 scales in Japan, France, Germany, Spain, and England, it was found that the physical functioning, vitality and mental health scores were lower and the general health perception was worse in women with SUI compared to those without (16,29). These results show that UI may affect all of the domains of quality of life in a negative direction. Both the underlying factors (such as diabetes, surgical operations, or high parity) and UI itself may affect quality of life. UI has some physical complications, such as urinary tract infections and skin lesions. Furthermore, incontinent patients have to empty their bladder constantly and they may be in fear of not finding a suitable toilet in time. For this reason, limitations in mobility through urgency or frequency symptoms are distressful.

In our study, almost all of the SF-36 domain scores were lower and the UDI-6 and IIQ-7 scores were higher in the MUI group compared to the pure SUI group. The differences in the physical functioning, social functioning, and vitality scores of quality of life and the UDI-6 and IIQ-7 scores were statistically significant. Similarly, Yu et al. (30), in a study in Taiwan, found that the IIQ-7 scores were higher in women with MUI. In a study from Japan performed by Azuma et al. (18), there was no difference in the SF-36 scores between the 3 incontinence types, whereas in another study, again from Japan and performed on working women, there was a significant effect of MUI on quality of life, similar to our study (19). In a study performed in the United States, MUI was found to be more bothersome than pure SUI and pure UUI (31). In some studies performed in the United States, the impact of MUI on quality of life was greater than that of SUI (21,32). In a study performed in Sweden, the United Kingdom, and the United States, quality of life scores related to both the physical and mental components were higher with SUI than MUI (33). However, in a Korean study, the SF-36 role-physical and bodily pain scores were higher in the MUI group than in the pure SUI group, and it has been

suggested that the SF-36 scale is not able to detect a significant difference in health-related quality of life measurements between SUI and MUI and that simultaneous disease-specific instruments should be used (34). Taking into account that cases of MUI will be more troublesome cases, having the symptoms and signs of both SUI and UUI, it would be expected that these patients' quality of life scores would be lower. Pure SUI patients can adapt their lifestyles by avoiding heavy lifting or exercising, thus prevent involuntary loss of urine. However, control of urgency is more difficult. It has been reported that the urge component of UI has a greater impact on health-related quality of life than the stress component (31).

It is also an expected result in the control group to see a decrease in the quality of life scores as age increases, because various chronic diseases (hypertension, diabetes mellitus, osteoarthritis, etc.) that may affect quality of life are more likely to be seen with aging. As shown in Table 4, there were negative correlations between age and quality of life scores in the control group. However, the fact that, in the UI group, some of the SF-36 domain scores increased and the UDI-6 and IIQ-7 scores decreased as age increased brings to mind that early onset of UI can be seen together with other conditions (diabetes mellitus, pelvic operations, etc.) that can impair quality of life. On the other hand, the perception of UI as a more devastating condition by younger women compared to the elderly, and the acceptance of UI as a normal process of aging, may have resulted in a lower quality of life perception in younger women.

It was concluded that the quality of life of women with UI is significantly lower than the quality of life of the women without UI. Quality of life scores are much lower in women with MUI. UI should be thoroughly treated in women, with the aim of increasing quality of life as well as avoiding other health conditions.

Study limitations

No clinical examinations, laboratory tests, or urodynamic tests were used in this study, and it was completed by data from questionnaires based on the patients' statements.

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